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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/891,849	06/25/2001	Steven Verhaverbeke	004711/P1	4749
32588 7590 05/16/2007 APPLIED MATERIALS, INC. P. O. BOX 450A SANTA CLARA, CA 95052			EXAMINER MARKOFF, ALEXANDER	
			ART UNIT 1746	PAPER NUMBER
			MAIL DATE 05/16/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

C

Office Action Summary	Application No.		Applicant(s)	
	09/891,849		VERHAVERBEKE ET AL.	
	Examiner		Art Unit	
	Alexander Markoff		1746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 February 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,5-16,18,19,22-25,45,46,52 and 221-241 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,5-16,18,19,22-25,45,46,52 and 221-241 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>2/26/07</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Group I in the reply filed on 2/26/07 is acknowledged. The traversal is moot in view of the amendment made to the claims. Since the claims of Group II now depend on the claims of Group I, and thereby belong to Group I, the claims are examined together.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-3, 5-16, 18, 19, 22-25, 45, 46, 52 and 221-241 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims are indefinite because the term "extensive" is a relative term lacking proper comparative basis.

The claims are indefinite because the term "predominant" is a relative term lacking proper comparative basis.

The claims are indefinite because the term "the predominant means" in claim 1 lacks proper antecedent basis.

The claims are indefinite because the term "the acoustic energy" in claim 1 lacks proper antecedent basis.

The claims are indefinite because the term "substantive" is a relative term lacking proper comparative basis.

The claims are indefinite because the term "the associated risk" in claim 1 lacks proper antecedent basis.

The claims are indefinite because the term "the devices" in claim 1 lacks proper antecedent basis.

The claims are indefinite because the term "the sonic energy" in claim 1 lacks proper antecedent basis.

Claims 222 and 233 are indefinite because the term "effectively" is a relative term lacking proper comparative basis.

Claims 226 and 237 are further indefinite because the term "relatively thin" is a relative term lacking proper comparative basis.

Claim Rejections - 35 USC § 102

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Claims 1-3, 5-11, 15, 19, 22-25, 45, 46, 52, 224-226, 229-231, 235-237 and 239-241 are rejected under 35 U.S.C. 102(e) as being anticipated by Lorimer (US Patent No 6460,552).

Lorimer teaches an apparatus as claimed. See entire document, especially Figures, 4, 6, 7a and the related description and columns 9-12.

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. The rejections made under 35 USC 103 in the previous Office actions are maintained for the reasons of record.

5. Claims 12-14, 16, 18 and 228, are rejected under 35 U.S.C. 103(a) as being unpatentable over Lorimer in view of Busnaina.

Lorimer teaches an apparatus as claimed except for specific disclosure of the operation frequencies of the ultrasonic transducers and the disclosure of the surface area of the transducers relative to the surface of the wafer.

Busnaina teaches that the claimed frequencies and ratios between the surface of transducers and wafers were known and teach such frequencies and ratios as preferred for providing efficient cleaning.

It would have been obvious to an ordinary artisan at the time the invention was made to provide the apparatus of Lorimer with transducers having frequencies and area as recommended by Busnaina in order to achieve adequate cleaning in a relatively short time.

6. Claims 221-223, 227, 232-234 and 238 rejected under 35 U.S.C. 103(a) as being unpatentable over Lorimer in view of Puskas (US Patent No 6,036,785), Hayamizu (US 20020157685) and Ferrell (US Patent No 6,313,565).

Lorimer teaches an apparatus as claimed except for specific disclosure of the of the different frequencies for the transducers.

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Puskas, Hayamizu and Ferrell teach that it was known in the art that the use of different frequencies enhance the cleaning and minimize damage to the substrates and that frequencies should be selected depending from the type of contamination.

It would have been obvious to an ordinary artisan at the time the invention was made to provide transducers operating in different frequencies in the apparatus of Lorimer in order to enhance the cleaning action of the apparatus with reasonable expectation of success because Puskas and Ferrell recommend such.

Response to Arguments

7. Applicant's arguments filed 11/02/06 have been fully considered but they are not persuasive.

The applicants allege that Lorimer does not teach a second liquid dispenser. The applicants argue that Lorimer teaches the second fluid, which is not a liquid, but a vapor.

This is not persuasive:

First, the apparatus of Lorimer is capable of delivering liquid.

Second, the claims do not exclude delivering liquid as a vapor.

Third, Lorimer teaches vapor rinsing, which is followed by drying. This means that at least some liquid is on the surface of the wafer during the process.

The fact that Lorimer recommends filtering the liquid in a vapor state does not change the fact that the liquid is delivered to the wafer.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

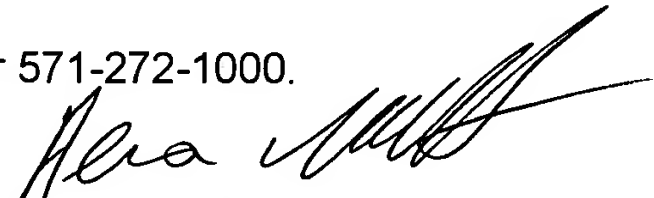
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander Markoff whose telephone number is 571-272-1304. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on 571-272-1414. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Alexander Markoff
Primary Examiner
Art Unit 1746

AM

ALEXANDER MARKOFF
PRIMARY EXAMINER